

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-45. (Canceled)

46. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising crystalline silicon and having at least source and drain regions and a channel forming region;

a gate insulating film over the channel forming region; and

a gate electrode formed over the gate insulating film;

an interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the interlayer insulating film and electrically connected to one of the source and drain regions of the first thin film transistor;

a color filter ~~having a flattened surface~~ formed over the interlayer insulating film and the conductive layer, wherein the color filter covers the entire first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

47. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising at least a channel forming region;

a gate insulating film adjacent to the channel forming region; and
a gate electrode adjacent to the gate insulating film,
an interlayer insulating film formed over the first thin film transistor;
a conductive layer formed over the interlayer insulating film and electrically connected to one of source and drain regions of the first thin film transistor;
a color filter ~~having a flattened surface~~ formed over the interlayer insulating film and the conductive layer, wherein the color filter covers the entire first thin film transistor; and
a pixel electrode formed over the color filter and electrically connected to the conductive layer.

48. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising crystalline silicon and having at least source and drain regions and a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

an interlayer insulating film formed over the first thin film transistor, the interlayer insulating film comprising at least a material selected from the group consisting of silicon nitride, silicon oxide and nitrated silicon oxide;

a color filter ~~having a flattened surface~~ formed over the interlayer insulating film, wherein the color filter covers the entire first thin film transistor; and

a pixel electrode formed over the color filter,

wherein the pixel electrode is electrically connected to the first thin film transistor.

49. (previously presented) A device according to claim 48, wherein the gate electrode is located over the channel forming region.

50-51. (Canceled).

52. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising crystalline silicon and having at least source and drain regions and a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode formed adjacent to the channel forming region with the gate insulating film interposed therebetween;

a first interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the first interlayer insulating film and electrically connected to one of the source and drain regions of the first thin film transistor;

a passivation film formed over the conductive layer, the passivation film comprising at least a material selected from the group consisting of silicon nitride, silicon oxide and nitrated silicon oxide;

a color filter ~~having a flattened surface~~ formed over the passivation film, wherein the color filter covers the entire first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

53. (previously presented) A device according to claim 52, wherein the gate electrode is located over the channel forming region.

54-55. (Canceled).

56. (currently amended) A semiconductor device comprising:
a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising :

a channel forming region; and

a source region and a drain region ~~in contact with the LDD regions;~~

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the gate insulating film;

an interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the interlayer insulating film and electrically connected to one of source and drain regions of the first thin film transistor;

a color filter formed over the interlayer insulating film, the conductive layer and the first thin film transistor, wherein the color filter covers the entire first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

57. (currently amended) A semiconductor device comprising:
a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising:

a channel forming region; and

a source region and a drain region ~~in contact with the LDD regions~~;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

an interlayer insulating film formed over the first thin film transistor, the interlayer insulating film comprising at least a material selected from the group consisting of silicon nitride, silicon oxide and nitrated silicon oxide;

a color filter formed over the interlayer insulating film and the first thin film transistor, wherein the color filter covers the entire first thin film transistor; and

a pixel electrode formed over the color filter.

58. (currently amended) A semiconductor device comprising:

a first thin film transistor formed over an insulating surface, the first thin film transistor comprising:

a semiconductor film comprising:

a channel forming region; and

a source region and a drain region ~~in contact with the LDD regions~~;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

a first interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the first interlayer insulating film and electrically connected to one of the source and drain regions of the first thin film transistor;

a passivation film formed over the conductive layer, the passivation film comprising at least a material selected from the group consisting of silicon nitride and nitrated silicon oxide;

a color filter formed over the passivation film and the first thin film transistor, wherein the color filter covers the entire first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

59. (currently amended) A semiconductor device comprising:

a first thin film transistor comprising:

a semiconductor film comprising at least a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

an interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the interlayer insulating film and electrically connected to one of source and drain regions of the first thin film transistor;

a color filter formed over the interlayer insulating film, the conductive layer and the first thin film transistor, wherein the color filter covers the entire first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

60. (currently amended) A semiconductor device comprising:

a first thin film transistor comprising:

a semiconductor film comprising silicon and having at least a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

an interlayer insulating film formed over the first thin film transistor, the interlayer insulating film comprising at least a material selected from the group consisting of silicon nitride, silicon oxide and nitrated silicon oxide;

a color filter formed over the interlayer insulating film and the first thin film transistor, wherein the color filter covers the entire first thin film transistor; and

a pixel electrode formed over the color filter.

61. (currently amended) A semiconductor device comprising:

a first thin film transistor comprising:

a semiconductor film comprising silicon and having at least a channel forming region;

a gate insulating film adjacent to the channel forming region; and

a gate electrode adjacent to the channel forming region with the gate insulating film interposed therebetween;

a first interlayer insulating film formed over the first thin film transistor;

a conductive layer formed over the first interlayer insulating film and electrically connected to one of the source and drain regions of the first thin film transistor;

a passivation film formed over the conductive layer, the passivation film comprising at least a material selected from the group consisting of silicon nitride and nitrated silicon oxide;

a color filter formed over the passivation film and the first thin film transistor, wherein the color filter covers the entire first thin film transistor; and

a pixel electrode formed over the color filter and electrically connected to the conductive layer.

62. (previously presented) A device according to claim 56, wherein the semiconductor film comprises crystalline silicon.

63. (previously presented) A device according to claim 57, wherein the semiconductor film comprises crystalline silicon.

64. (previously presented) A device according to claim 58, wherein the semiconductor film comprises crystalline silicon.

65. (previously presented) A device according to claim 59, wherein the semiconductor film comprises crystalline silicon.

66. (previously presented) A device according to claim 60, wherein the semiconductor film comprises crystalline silicon.

67. (previously presented) A device according to claim 61, wherein the semiconductor film comprises crystalline silicon.

68. (previously presented) A device according to claim 46, wherein the semiconductor device further comprising:

a resin film over the color filter;

an electrode over the organic resin film; and

an oxide film of the electrode in direct contact with at least a portion of a surface of the electrode,

wherein the pixel electrode is in direct contact with at least a portion of the oxide film, and

wherein a storage capacitor comprises the electrode and the pixel electrode with the oxide film interposed therebetween.

69. (previously presented) A device according to claim 48, wherein the semiconductor device further comprising:

a resin film over the color filter;

an electrode over the organic resin film; and

an oxide film of the electrode in direct contact with at least a portion of a surface of the electrode,

wherein the pixel electrode is in direct contact with at least a portion of the oxide film, and

wherein a storage capacitor comprises the electrode and the pixel electrode with the oxide film interposed therebetween.

70. (previously presented) A device according to claim 52, wherein the semiconductor device further comprising:

a resin film over the color filter;

an electrode over the organic resin film; and

an oxide film of the electrode in direct contact with at least a portion of a surface of the electrode,

wherein the pixel electrode is in direct contact with at least a portion of the oxide film,
and

wherein a storage capacitor comprises the first electrode and the pixel electrode with the oxide film interposed therebetween.

71. (previously presented) A device according to claim 46, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

72. (previously presented) A device according to claim 48, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

73. (previously presented) A device according to claim 52, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

74. (previously presented) A device according to claim 56, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

75. (previously presented) A device according to claim 57, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

76. (previously presented) A device according to claim 58, wherein the semiconductor film further comprises LDD regions between the channel forming region and the source and drain regions.

77. (previously presented) A device according to claim 46, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

78. (previously presented) A device according to claim 47, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

79. (previously presented) A device according to claim 48, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

80. (Canceled).

81. (previously presented) A device according to claim 52, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

82. (Canceled).

83. (previously presented) A device according to claim 56, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

84. (previously presented) A device according to claim 57, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

85. (previously presented) A device according to claim 58, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

86. (previously presented) A device according to claim 59, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

87. (previously presented) A device according to claim 60, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

88. (previously presented) A device according to claim 61, further comprising a driver circuit comprising a second thin film transistor,

wherein the first thin film transistor is included in a pixel matrix circuit, and

wherein the pixel matrix circuit and the driver circuit are formed over an insulating surface.

89. (New) A device according to claim 46, wherein the semiconductor device is selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

90. (New) A device according to claim 47, wherein the semiconductor device is

selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

91. (New) A device according to claim 48, wherein the semiconductor device is selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

92. (New) A device according to claim 52, wherein the semiconductor device is selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

93. (New) A device according to claim 56, wherein the semiconductor device is selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

94. (New) A device according to claim 57, wherein the semiconductor device is selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

95. (New) A device according to claim 58, wherein the semiconductor device is

selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

96. (New) A device according to claim 59, wherein the semiconductor device is selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

97. (New) A device according to claim 60, wherein the semiconductor device is selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

98. (New) A device according to claim 61, wherein the semiconductor device is selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player that uses a recording medium, a camera, a projector, a portable telephone, a portable book and a display device.

99. (New) A device according to claim 46 wherein said color filter has a flat upper surface.

100. (New) A device according to claim 47 wherein said color filter has a flat upper surface.

101. (New) A device according to claim 48 wherein said color filter has a flat upper surface.

102. (New) A device according to claim 52 wherein said color filter has a flat upper surface.

103. (New) A device according to claim 56 wherein said color filter has a flat upper surface.

104. (New) A device according to claim 57 wherein said color filter has a flat upper surface.

105. (New) A device according to claim 58 wherein said color filter has a flat upper surface.

106. (New) A device according to claim 59 wherein said color filter has a flat upper surface.

107. (New) A device according to claim 60 wherein said color filter has a flat upper surface.

108. (New) A device according to claim 61 wherein said color filter has a flat upper surface.

109. (New) A device according to claim 46 wherein said color filter has an opening

through which said pixel electrode is electrically connected to the conductive layer.

110. (New) A device according to claim 47 wherein said color filter has an opening through which said pixel electrode is electrically connected to the conductive layer.

111. (New) A device according to claim 48 wherein said color filter has an opening through which said pixel electrode is electrically connected to the first thin film transistor.

112. (New) A device according to claim 52 wherein said color filter has an opening through which said pixel electrode is electrically connected to the conductive layer.

113. (New) A device according to claim 56 wherein said color filter has an opening through which said pixel electrode is electrically connected to the conductive layer.

114. (New) A device according to claim 57 wherein said color filter has an opening through which said pixel electrode is electrically connected to the first thin film transistor.

115. (New) A device according to claim 58 wherein said color filter has an opening through which said pixel electrode is electrically connected to the conductive layer.

116. (New) A device according to claim 59 wherein said color filter has an opening through which said pixel electrode is electrically connected to the conductive layer.

117. (New) A device according to claim 60 wherein said color filter has an opening through which said pixel electrode is electrically connected to the thin film transistor.

118. (New) A device according to claim 61 wherein said color filter has an opening through which said pixel electrode is electrically connected to the conductive layer.